Memorandum

To: *Diane Salkie, EPA Region 2*
Elizabeth Franklin, USACE

From: *Troy Gallagher, CDM Smith*

Date: *November 26, 2019*

Subject: *Summary of Oversight of Equipment Servicing*
August 13–14, 2019
Lower Passaic River Restoration Project

On behalf of the United States Environmental Protection Agency (EPA) and the United States Army Corps of Engineers (USACE), Kansas City District, CDM Federal Programs Corporation (CDM Smith) traveled to the Lower Passaic River Study Area (LPRSA) on Tuesday, August 13 and Wednesday, August 14, 2019 and provided field technical oversight for the third round of mooring servicing associated with the Physical Water Column Monitoring (PWCM). Five fixed point monitoring locations were serviced at the following river miles (RMs): RM 8.4, RM 10.2, RM 12.0, RM 13.5, and RM 15.8. The locations consist of a surface buoy and bottom mooring, except at RM 15.8, which is shallow and only has a surface buoy. Surface buoys have a YSI sonde mounted to collect conductivity, turbidity, and temperature data. The bottom moorings house a YSI sonde collecting the same parameters as well as an acoustic doppler current profiler (ADCP) to measure flow velocity. Field activities included cleaning the moorings, downloading the data, confirming equipment functionality, and redeployment. In addition, a vertical YSI profile was collected at each location, from river surface to bottom. Field activities were conducted by Ocean Surveys, Inc. (OSI) and AECOM on behalf of the Cooperating Parties Group (CPG). Anchor QEA provided field support on behalf of the CPG.

The fixed point monitoring locations are presented in Figure 1 (note this figure is from the CPG's PWCM Quality Assurance Project Plan (QAPP)). Oversight was conducted in accordance with CDM Smith's Final QAPP for PWCM, dated August 13, 2019. Photographs of field activities are presented in Attachment 1. A copy of the field logbook notes is provided in Attachment 2.

Summary of Tuesday, August 13, 2019 Field Activities

Personnel in Attendance

Troy Gallagher – CDM Smith
Ken Cadmus – OSI
Alexandra Allen – OSI
Steve Howe – AECOM
Chris Yates – Anchor QEA

All personnel met at the 1 Madison Street boat dock in Rutherford, New Jersey. OSI and AECOM rode in OSI's boat, which was equipped with a winch and the tools for servicing. Anchor QEA and CDM Smith rode in a separate boat for observation and oversight.

Both crews mobilized to RM 15.8. OSI began by collecting a vertical YSI profile at RM 15.8. OSI then began servicing the RM 15.8 buoy-mounted YSI. The YSI was removed and cleaned, had its data downloaded, had its wiper confirmed functional, and was compared against the calibrated boat YSI. The comparison was good (here and elsewhere in this oversight summary report, a good comparison means that measurements from the deployed YSI did not show obvious data quality issues relative to the calibrated boat YSI), so the YSI was redeployed.

Both crews departed from RM 15.8 and headed towards the 1 Madison Street dock to gather more supplies for the next station. After resupplying both boats, both crews mobilized to RM 12.0. OSI began servicing the RM 12.0 buoy-mounted YSI. The YSI was removed and cleaned, had its data downloaded, had its wiper confirmed functional, and was compared against the calibrated boat YSI. The comparison was good, so the YSI was redeployed.

The RM 12.0 bottom mooring locator buoy was released, and the mooring was retrieved using the winch on the boat. The bottom-mounted YSI was removed and cleaned, had its data downloaded, had its wiper confirmed functional, and was compared against the calibrated boat YSI. The comparison was good. The ADCP was removed, cleaned, had its data downloaded, and its four sensors were confirmed to be functional. The battery on the ADCP was replaced, and after confirming the voltage reading on the new battery, both the ADCP and the YSI were remounted to the mooring and the locator buoy was reset. The mooring was then lowered back to its original position using the GPS located above the winch arm. A vertical YSI profile was collected at RM 12.0 before departing from the location.

Both crews mobilized to RM 10.2. OSI began servicing the RM 10.2 buoy-mounted YSI. The YSI was removed and cleaned, had its data downloaded, had its wiper confirmed functional, and was compared against the calibrated boat YSI. The comparison was good, so the YSI was redeployed.

The RM 10.2 bottom mooring locator buoy was released, and the mooring was retrieved. The bottom-mounted YSI was removed and cleaned, and the data was downloaded; upon arrival to the YSI it was

noted that the wiper was no longer functional. The probes on the RM 10.2 YSI were replaced with new probes, and then the YSI was calibrated to ensure accurate readings. The comparison with the boat YSI was good. The ADCP was removed, cleaned, had its data downloaded, and its four sensors were confirmed to be functional. The ADCP and the YSI were both remounted onto the mooring and the locator buoy was reset. The mooring was then lowered back to its original position using the GPS located above the winch arm. A vertical YSI profile was collected at RM 10.2 before departing from the location.

Both crews mobilized to the RM 13.5 buoy and waited for rain to subside before beginning the equipment servicing at this last location of the day. After performing the vertical profile, OSI began servicing the RM 13.5 buoy-mounted YSI. The YSI was removed and cleaned, had its data downloaded, had its wiper confirmed functional, and was compared against the calibrated boat YSI. The comparison was good, so the YSI was redeployed.

The RM 13.5 bottom mooring locator buoy was released, and the mooring was retrieved. The bottom-mounted YSI was removed and cleaned, had its data downloaded, had its wiper confirmed functional, and was compared against the calibrated boat YSI. The comparison was good. The ADCP was removed, cleaned, had its data downloaded, and its four sensors were confirmed to be functional. The ADCP and the YSI were both remounted onto the mooring and the locator buoy was reset. The mooring was then lowered back to its original position using the GPS located above the winch arm. A vertical YSI profile was collected at RM 13.5 before departing from the location.

All personnel returned to the 1 Madison Street boat dock, secured the boats and equipment, and departed the site.

Summary of Wednesday, August 14, 2019 Field Activities

Personnel in Attendance

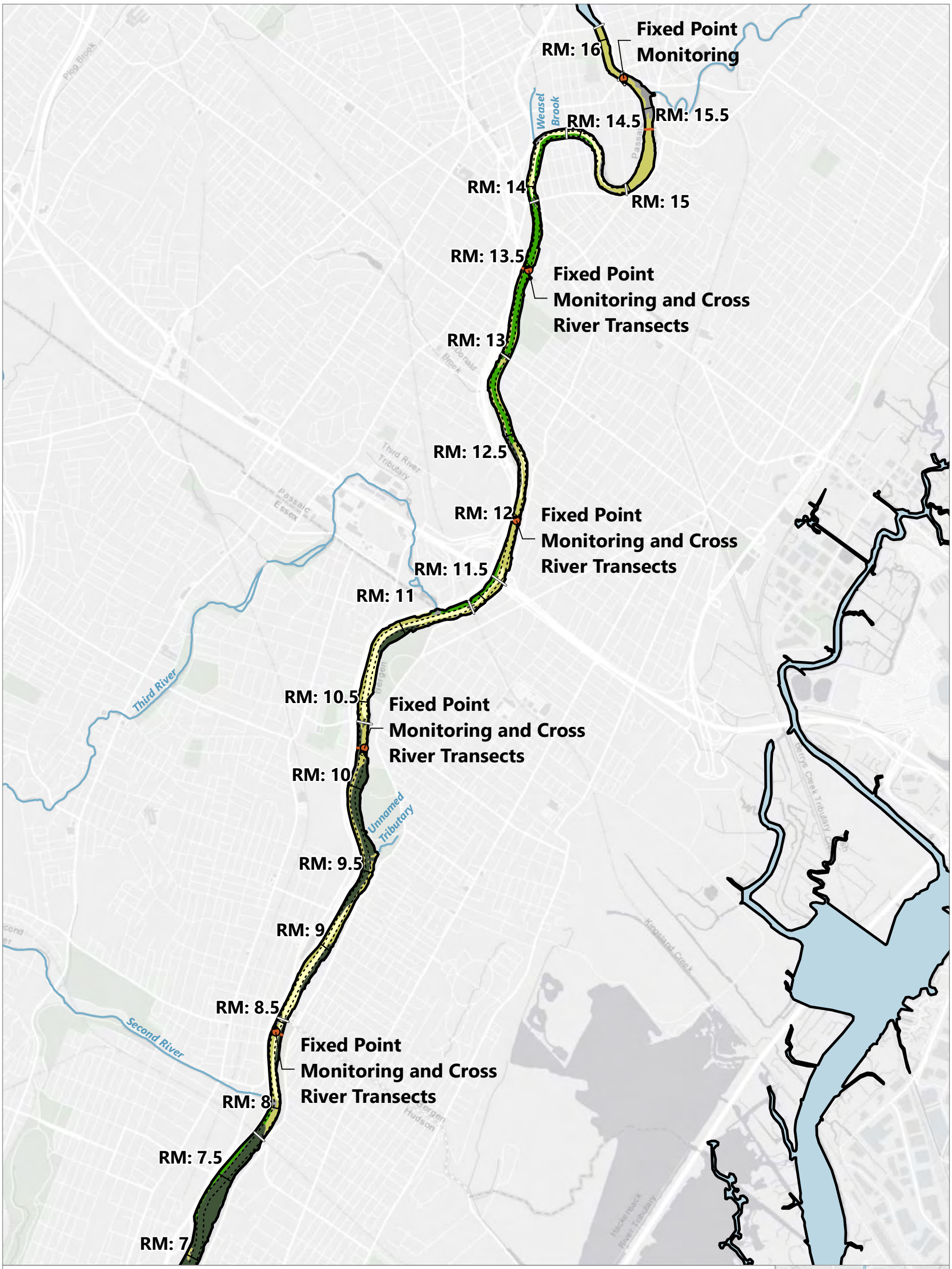
Troy Gallagher – CDM Smith
Ken Cadmus – OSI
Alexandra Allen – OSI
Steve Howe – AECOM
Chris Yates – Anchor QEA

All personnel met at the 1 Madison Road boat dock in Rutherford, New Jersey. OSI and AECOM rode in OSI's boat, which was equipped with a winch and the tools for servicing. Anchor QEA and CDM Smith rode in a separate boat for observation and oversight. Before mobilizing to the first location, Steve Howe from AECOM was picked up from the boat dock south of the RM 8.4 buoy.

Both crews mobilized to RM 8.4. OSI began servicing the RM 8.4 buoy-mounted YSI. The YSI was removed and cleaned, had its data downloaded, had its wiper confirmed functional, and was compared against the calibrated boat YSI. The comparison was good, so the YSI was redeployed.

The RM 8.4 bottom mooring locator buoy was released, and the mooring was retrieved. The bottom-mounted YSI was removed and cleaned, had its data downloaded, had its wiper confirmed functional, and was compared against the calibrated boat YSI. The comparison was good. The ADCP was removed, cleaned, had its data downloaded, and its four sensors were confirmed to be functional. Both the ADCP and YSI were remounted to the mooring and the locator buoy was reset. The mooring was then lowered back to its original position using the GPS located above the winch arm. A vertical YSI profile was collected at RM 8.4 to end the day.

Figure 1



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Filepath: \\Boston1\jobs\Passaic_CPG\DOCUMENTS\2019\Current_Conditions_Physical_WC_QAPP\source\RM7.8_to_DD_Map_monitoring_locations_FullExtent.mxd

Figure 1
Current Conditions Monitoring Locations
Field Sampling Plan Addendum
Current Conditions Monitoring Program - Physical Water Column Monitoring
Lower Passaic River Restoration Project

Attachment 1

Photographs of Field Activities

Photograph 1: OSI performing vertical profile at RM 15.8

Photograph 2: OSI gathering YSI from the bottom of the surface buoy at RM 12.0

Photograph 3: OSI cleaning off YSI probes and checking calibration compared to boat YSI at RM 12.0

Photograph 4: OSI cleaning off ADCP on mooring and checking sensors to ensure working condition at RM 10.2

Photograph 5: OSI cleaning off individual sensors on YSI with small brushes at RM 10.2

Photograph 6: OSI using the winch to raise the buoy from the river to gather the YSI from RM 13.5

Photograph 7: OSI raising the YSI from the river using the winch at RM 13.5

Photograph 8: OSI cleaning off the YSI and checking calibration at RM 13.5

Photograph 9: Raised buoy with the winch, and OSI cleaning off the YSI probes at RM 8.4

Photograph 10: OSI raising the mooring from the riverbed at RM 8.4 and cleaning off the casings

Attachment 2

Field Logbook

Location Rutherford, NJ Date 8/13/19

Project / Client Lower Passaic River / USACE

Diamond Alkalai 004

6[00] Troy Gallagher (TG, COM) arrives onsite at 1 Madison St. Dock. Meets with Ken Cadmus (OSI) and Chris Yates (Anchor QEA).

6[15] Loading up both boats with equipment, preparing to head out on to river. Steve Howe (AECOM) arrives onsite and performs H+S meeting. Alexandra Allen (OSI) also onsite at this time.

6[30] Board boat with Chris Yates

Weather: Partly cloudy, windy, 70°F upon boarding, possible rain/thunder for early afternoon

PPE Modified level D

Purpose Servicing of YSIs along several points of the Passaic R.

6[45] Ken, Alexandra, and Steve all board other boat. Depart from dock at 1 Madison and head North up River,

8/13/19

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Diamond Alkalai 004

7[05] Arrive at buoy at RM 15.8 OSI boat begins work prepping YSI. Light rain begins. Ken brings up YSI from buoy. Pull up next to other boat and tie off to each other. Clean off YSI casing. Downloading data onto computer. Calibrating YSI for comparison. Comparison against boat YSI is good. Redeploying YSI + buoy. at 7:40

7[45] Departing RM 15.8 buoy and heading south on River.

7[55] Arrive back at 1 Madison dock to pick up supplies, then head back south to RM 12.

8[05] Arrive at buoy at RM 12 Ken pulls in YSI from River and begins comparison to YSI on boat. Both boats tie up together.

8[15] Begin raising buoy from River to retreive YSI

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Location Rutherford, NJ Date 8/13/19

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Diamond Alkalai OU4

8[20] Cleaning off YSI From surface River. Begin downloading data

8[30] Begin comparison of YSI to boat YSI. Comparison looks good. Getting ready to release buoy and YSI back in water.

8[50] Preparing to bring up YSI from bottom of river at RM 12. Released tension line and buoy popped up from underwater. Bring buoy into boat, Start raising YSI from bottom. Cleaning YSI and other equipment on mount. Cleaning off ADCP.

9[10] Cleaning off YSI from bottom of river. Beginning comparison with YSI on boat. Opening up ADCP in order to change the battery. All data downloaded from YSI. Turbidity looks good on data, Ken mentioned there were some issues with turbidity here.

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Diamond Alkalai OU4

9[20] Battery on ADCP changed and voltage checked. YSI comparisons are good. Removed memory card from ADCP for download.

9[45] Calibrate ADCP. Reattach all equipment back to mount.

10[10] Deploy equipment mount back to bottom of river. with YSI and ADCP

10[15] OSI crew performs a vertical profile. Heading south on River to next buoy.

10[35] Arrive at buoy at RM 10.2 Begin raising buoy with surface YSI. Clean off YSI. Downloaded data. Begin comparing YSI to boat YSI. Comparison is good

11[00] Deploy buoy with YSI back into the water. Raise the buoy for the YSI on the bottom of the river.

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Diamond Alkalai OU4

11[10] Clean off mount and raise into boat. Clean off YSI sensors. Wiper not working upon arrival. Cleaning off ADCP. Data downloaded

11[35] Swapping out the propes on the YSI with ones. Data looks ok, suspected wiper broke during a big tidal pulse, has been replaced. Calibrated new YSI sensors. Compared with YSI on boat and it was good. Load up mount with YSI and ADCP to prepare for re-deploy.

12[08] Equipment mount deployed back to the bottom of the river. Perform vertical profile.

12[20] Head back to 1 Madison dock to use bathroom and eat lunch.

13[00] Arrive at buoy at RM 13.5. Waiting for rain to ease up before beginning servicing

TG 8/13/19

Location Rutherford NJ Date 8/13/19

Project / Client Lower Passaic River / USACE

Diamond Alkalai OU4

13[15] Begin vertical profile. Bring in YSI from buoy on surface of river. Cleaning off YSI sensors.

13[32] Checking comparison of boat YSI to river YSI; comparison was good. Re-deploying buoy and YSI.

13[48] Release buoy from bottom of river and begin to raise mount with YSI and ADCP. Clean mount and remove YSI/ADCP for cleaning. Downloading data. Comparing YSI readings with boat YSI. Comparison is good.

14[10] Perform rub test on ADCP. Re-attach all equipment to mount and prepare to place back in river.

14[27] Re-deploy mount to bottom of river at RM 13.5

14[30] Head back to dock to unload all equipment.

15[00] TG offsite

TG 8/13/19

Location Rutherford, NJ Date 8/14/19

Project / Client Lower Passaic River / USACE

Diamond Alkalai OU4

6[00] TG arrive onsite

Weather: 75°, partly cloudy

PPE: Modified level D

Purpose: Conclude equipment servicing on Passaic River

6[10] TG meet up with Ken Cadmus (OSI), Alexandra Allen (OSI) and Chris Yates (Anchor QEA) at dock at 1 Madison St. Loading up boats to service last location of equipment before high tide at 9am

6[25] Depart dock at 1 Madison and head towards boat dock South of buoy at RM 8.4 to pick up Steve Howe (AECOM), then head up to buoy.

6[55] Pick up S.H. and head North to equipment buoy at RM 8.4

7[12] Arrive at buoy at RM 8.4, meet up with other boat. Begin to raise buoy to gather YSI from the surface of the river. Clean off sensors from YSI.

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Diamond Alkalai OU4

7[20] Downloading data. Beginning comparison of YSI to YSI on boat. Comparison is good. Re-attach YSI to buoy and re-deploy into river.

7[34] Buoy released from bottom of river. Equipment mount raised from the river bed. Buoy is located about 50ft. North of yellow surface buoy. OSI cleans off mount then brings onto boat.

7[48] OSI cleans off sensors of YSI, downloads data, and begins comparison to boat YSI. Clean off ADCP. YSI comparison is good.

8[19] Perform rub test on ADCP. Set up all equipment back on mount and prepare to re-deploy.

8[42] Raise equipment mount with rope and lower back to river bed. Head back to boat ramp to put boat on the trailer.

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